



This listing of claims will replace all prior versions, listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A composite sol gel formulation comprising:
a slurry having up to 90% by weight of inorganic powder dispersed in a colloidal sol gel solution prepared from metal organic precursors which comprises a metal alkoxide,
wherein said sol gel solution ~~has~~ contains an acid and said metal alkoxide in a molar ratio selected to cause said sol gel solution to form an expanded and preferably discontinuous gel network;
said ~~coating layer~~ slurry converting to a thick inorganic coating upon firing to a temperature of at least 300° C. "
2. The composite sol gel formulation of claim 1 wherein:
said colloidal sol gel is made by hot water peptization of said metal alkoxide with [[an]] said acid; and
said acid having an ionization constant of at least 1×10^{-5} , a noncomplexing anion with the metal species of the alkoxide; ~~and,~~
~~the molar ratio of said acid to said metal alkoxide is selected to cause said gel network to be expanded and preferably discontinuous.~~
3. (currently amended) The composite sol gel ~~solution~~ formulation of claim 2 wherein said colloidal sol gel solution contains an inorganic acid and has an acid/metal alkoxide molar ratio greater than 0.10.
4. (currently amended) The composite sol gel ~~solution~~ formulation of claim 3 wherein: said acid/metal alkoxide molar ratio is from 0.15 to 1.0; and, said slurry has a thixotropic nature enabling its application to a substrate by shear thinning followed by coating on said substrate and subsequent re-gelling.

5. (currently amended) The composite sol gel ~~solution~~ formulation of claim 2, 3 or 4 wherein said inorganic acid is a member selected from the group consisting of nitric acid, hydrochloric acid and perchloric acid.
6. (original) The composite sol gel formulation of claim 2, 3 or 4 wherein said acid has been produced by adding a water soluble acid salt having a noncomplexing anion with the metal species of the alkoxide.
7. (original) The composite sol gel formulation of claim 2 wherein said colloidal sol gel contains an organic acid and has an acid/metal alkoxide molar ratio of greater than 0.25.
8. (original) The composite sold gel formulation of claim 7 wherein: said acid/metal alkoxide molar ratio is from 0.5 to 4.0; and said slurry has a thixotropic nature enabling its application to a substrate by shear thinning followed by coating on said substrate and subsequent re-gelling.
9. (original) The composite sol gel formulation of claim 7 or 8 wherein said organic acid is a member selected from the group consisting of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid and formic acid.
10. (original) The composite sol gel formulation of claim 1 wherein said colloidal sol gel is alumina.
11. (original) The composite sol gel formulation of claim 10 wherein said alumina sol gel is made from a member selected from the group consisting of aluminum isopropoxide, aluminum propoxide, aluminum n-butoxide, aluminum sec-butoxide, aluminum tert-butoxide, aluminum methoxide and aluminum ethoxide.
12. (original) The composite sol gel formulation of claim 1 wherein said colloidal sol

gel is at least one member selected from the group consisting of alumina, titania, zirconia and silica.

13. (currently amended) The composite ~~said~~ sol gel formulation of claim 1 wherein said colloidal sol gel solution has a pH of no greater than 3.8.

14. (original) The composite sol gel formulation of claim 1 wherein said colloidal sol gel solution has a pH of no greater than 3.6.

15. (original) The composite sol gel formulation of claim 1 wherein said colloidal sol gel solution has an alkoxide molar concentration of between 0.5 and 2.0.

16. (original) The composite sol gel formulation of claim 1 wherein said inorganic powder is a member selected from the group consisting of oxide, nitride, carbide, silicide, graphite and silver.

17. (currently amended) The composite sol gel formulation of claim 1 wherein said ceramic inorganic coating is at least 100 microns thick.

18. (original) The composite sol gel formulation of claim 1 wherein said formulation is capable of forming a ceramic coating of at least 1 mm thick by repeated coating and firing.

19. (original) The composite sol gel formulation of claim 1 wherein said inorganic powder has an average particle size of from 1 to 100 microns.

20. (original) The composite sol gel formulation of claim 1 wherein said inorganic powder has an average particle size of from 1 to 30 microns.

21- 41. (cancelled)